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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,604	01/21/2004	Venkatesan Manivannan	130234	5036

6147 7590 09/28/2005

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

KOSLOW, CAROL M

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,604

Applicant(s)

MANIVANNAN ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 21-26 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9, 11, 12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 3 and 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/1/05; 1/21/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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CN 15444575A cited in the information disclosure statement filed 1 August 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The disclosure is objected to because of the following informalities: The degree symbol is missing from the temperatures in the specification. The information in the blank in paragraph [0046] needs to be provided. For the formulas in paragraphs [0046] and [0048]-[0050], applicants need to clarify if all the elements in the parenthesis need to be present or if at least one of the element needs to be present. The art interprets the meaning of elements in parenthesis both ways. Appropriate correction is required.

Claims 14, 17 and 19 are objected to because of the following informalities: The degree symbols are missing from the temperatures. Appropriate correction is required.

Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is improperly dependent on claim 18. It should depend from claim 10. Claim 12 is indefinite since it is unclear if all the elements in the parenthesis need to be present or if at least one of the element needs to be present. The art interprets the meaning of elements in parenthesis both ways.

Claims 14-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for producing $\text{AB}_3\text{O}_6\text{:Ce,Mn}$, wherein A is at least a rare earth element

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other than cerium, does not reasonably provide enablement for any phosphor containing boron, cerium, manganese and at least one rare earth other than cerium. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The claims recite a phosphor containing boron, cerium, manganese and at least one rare earth other than cerium. This encompasses any phosphor containing boron, cerium, manganese and at least one rare earth other than cerium, such as the phosphors of U.S. patents 5,132,043 and 4,319,161. However, the specification only teaches the use of $AB_3O_6:Ce,Mn$, wherein A is at least a rare earth element other than cerium. Such a limited disclosure does not support the breadth of the instant claims. The examiner suggests the incorporation of $AB_3O_6:Ce,Mn$, wherein A is at least a rare earth element other than cerium into claims 14, 17 and 19.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the article by Peters et al.

This article teaches a green phosphor having the formula $GbB_3O_6:Mn,Ce$. The article clearly teaches the claimed phosphor.

Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. patent 4,319,161.

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Examples 33-35, 39 and 40 teach producing a phosphor comprising mixing gadolinium oxide, cerium oxide, manganese carbonate and boric acid and firing the mixture in a reducing atmosphere at 940°C or 1035°C for 1 hour. This is the claimed process.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article by Peters et al.

This reference teaches a green phosphor having the formula $GdB_3O_6:Mn,Ce$. It does not teach the amounts of cerium and manganese, but the amounts must be that effective to provide a green emission having a peak of 530 nm. It appears these amounts overlap the claimed ranges since the claimed ranges provide a green emission having a peak in the range of about 530-550 nm.

Claims 10 and 21-26 are allowable over the cited art of record.

Claims 3 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 11, 12 and 17-20 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112 set forth in this Office action.

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Claim 16 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

There is no teaching or suggestion in the cited art of record of a phosphor blend, a light source and a display comprising a phosphor having the formula $AB_3O_6:Ce,Mn$, wherein A is at least a rare earth element other than cerium. There is no suggestion in the article to use the taught phosphor in a phosphor blend, a light source and a display. There is no teaching or suggestion in the cited art to produce a phosphor having the formula $AB_3O_6:Ce,Mn$, wherein A is at least a rare earth element other than cerium by the claimed processes. The article does not teach how the taught phosphor is produced and there is no suggestion as to claimed firing temperature. U.S. patent 5,132,043 is cited as of interest since it teaches a process similar to that of claims 17 and 18, but the taught maximum precipitate heating temperature is 500°C and there is no suggestion to increase this temperature so it falls within the claimed range.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
September 23, 2005


C. Melissa Koslow
Primary Examiner
Tech. Center 1700